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09/926,012	10/24/2001	Yasuji Hiramatsu	212814US3PCT	9486

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ALEXANDRIA, VA 22314

EXAMINER

PAIK, SANG YEOP

ART UNIT	PAPER NUMBER
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3742

DATE MAILED: 04/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/926,012

Applicant(s)

HIRAMATSU ET AL.

Examiner

Sang Y Paik

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 27-40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 27-40 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                                                       |                                                                                        |
|-----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                                      | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____                                                |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1, 2 and 29-40 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1 and 2, the recitation of a "point of contact" renders the scope of the claims vague and unclear since there is no range or scope of how big or small the "point of contact" can be made. For example, at an infinitesimal or microscopic level, there may be many points of contact on the convex body.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

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4. Claims 1, 2, 29, 31-34 and 36-39 are rejected under 35 U.S.C. 102(e) as being anticipated by Yamada et al (US 6,134,096).

Yamada et al anticipates the ceramic heater claimed including a ceramic substrate with a resistive heating element such as a metal wire, a convex body formed on the surface of the ceramic substrate to provide one point of contact and to hold apart an object from the ceramic substrate heating surface, the ceramic substrate having 5 % yttria as the sintering aid, and a hole through which a pin is provided to hold and life an object such as a wafer.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 27, 28 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada et al (US 6,134,096) in view of Tamagawa et al (US 5,777,838), Grimard et al (US 5,903,428) or Imai (US 5,738,165).

Yamada et al shows the ceramic heater claimed except the convex body is in the form of a conical or spherical shape.

Tamagawa et al shows a convex body having a spherical or pyramidal shape having the height of 15-30 microns to provide a small point of contact to reduce the heat conduction between the wafer and the convex body. Grimard et al also shows a convex body having a spherical shape having the height of 5 to 350 microns to provide a minimal contact between the convex body and the wafer to maximize the heat transfer between the

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wafer and the ceramic heating surface. Iami also a convex body having a pyramidal shape having the height of 10-20 microns to show that the gap is provided to further provide a convection heat transfer between the wafer and the heater. In view of Tamagawa et al, Grimard et al or Iami, it would have been obvious to one of ordinary skill in the art to adapt Yamada et al with the convex body that is well known in the art to have the shapes of sphere or pyramid to provide a small contact point to minimize the contact area to more uniformly provide the convection heat transfer between the wafer and the ceramic heating surface.

7. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada et al (US 6,134,096) in view of Kobayashi et al (US 5,908,799).

Yamada et al discloses the ceramic heater claimed except having the ceramic substrate having 200 to 5000 ppm of carbon.

Kobayashi et al shows a ceramic heater having a ceramic substrate made of aluminum nitride with 500 to 5000 ppm of carbon. Kobayashi et al teaches that adding such carbon provides the ceramic substrate with a blackish color while providing greater radiation heat capacity. In view of Kobayashi et al, it would have been obvious to one of ordinary skill in the art to adapt Yamada et al with 500 to 5000 ppm of carbon to the ceramic substrate to provide the ceramic heater with a blackish color that provides a high radiation heat capacity.

8. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada et al (US 6,134,096) in view of Yoshida et al (US 6,080,970) or Kawanabe et al (US 6,133,557).

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Yamada et al discloses the ceramic heater claimed except the heating element is a pattern of concentric circles.

Yoshida et al and Kawanabe et al show a ceramic heater having a heating element in the form of concentric circles. In view of Yoshida et al or Kawanabe et al, it would have been obvious to one of ordinary skill in the art to adapt Yamada et al with the heating element in the form of concentric circles as to substantially cover the heating area to provide a more uniform heating surface.

***Response to Arguments***

9. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sang Y Paik whose telephone number is 703-308-1147. The examiner can normally be reached on M-F (8:00-5:30) First Friday Off.

The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0861.



Sang Y Paik  
Primary Examiner  
Art Unit 3742

Syp